Expectations for Panel Discussions and Breakout Sessions

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Technical Forum Framed Around These Topical Areas

Characterization and Monitoring

Characterize physical, geochemical, and biologic properties controlling contaminant fate/transport. **Monitor** subsurface behavior, contaminant movement, and remediation performance

Subsurface Processes and Predictive Modeling

Simulate controlling subsurface **processes** and **model** moisture flux, contaminant movement, and remediation performance

Subsurface Access and Remediation

Access subsurface to characterize, perform cleanup etc; carry out actions to **remediate** contamination

Panel Discussions and Breakout Sessions

Panel Discussions (Background Information, questions/answers)	**Breakout Sessions** (Identify Key Knowledge and Capability Challenges)
Vadose Zone Concepts: Processes and Predictive Modeling; What Controls Fluid and Contaminant Movement? →	**Subsurface Processes and Predictive Modeling**
Vadose Zone Concepts: Characterization and Monitoring: Current Capabilities and Challenges →	**Characterization and Monitoring**
Vadose Zone Concepts: Remediation Technologies and Approaches: Current Capabilities and Challenges →	**Subsurface Access and Remediation**

Expectations for Panel Discussions

- **Purpose**: Create a shared conversation by introducing vadose zone concepts and challenges faced

- **Approach**: Panel member presentations and discussion
  - Panel presentations (40% time)
  - Participant questions and panel responses (60% time)

- **Goals**: Initiate conversations to:
  - Create common knowledge/language
  - Engage participants
  - Facilitate breakout session discussions

Expectations for Breakout Sessions

- **Purpose**: Identify key knowledge and capability needs facing deep vadose zone characterization, modeling, access, remediation, and monitoring

- **Approach**: Hold three simultaneous breakout sessions
  - Chairs/co-chairs engage participants and capture discussions
  - Participants identify key needs/issues—and rank (high, medium, low)
  - Results of Breakout Sessions summarized before all participants
  - Feedback captured

- **Goal**: Incorporate technical forum outcomes (knowledge and capability challenges) in draft Deep Vadose Zone Strategy

Examples of Possible Knowledge/Capability Needs

- **Improved methods to characterize moisture and contaminant distribution/movement**
  - Surface and down-hole geophysical tools supporting 3-D stratigraphic and plume imaging
  - Down-hole and field-screening sensors for contaminant identification
- **Advanced predictive modeling capabilities**
  - Computing capability to model coupled geohydrologic, geochemical, and bio-geochemistry processes/impact on contaminant behavior
  - Incorporate field-scaled subsurface heterogeneities into models
- **Enhanced remediation concepts and amendment delivery**
  - Targeted capabilities to remove or immobilize Tc, I, or U
  - Reactive gas injection to induce geochemical changes
  - Foam-based delivery of remediation amendments